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ABSTRACT

The problems of resource allocation and management within open learning systems in colleges of further and higher education in Britain are discussed in this paper, with particular focus on the deployment of academic staff. First, the components of open learning systems are outlined; e.g., providing materials for students' private study, grading and commenting on students' work, and providing tutorial and counseling support. A discussion of the problems involved in determining the resources used in open learning systems, such as flexistudy, is followed by sections focusing on procedures for determining the number of teachers required by a college, the responsibilities of teaching staff, and methods of estimating teaching hours for flexistudy through analogies with regular programs. These estimates require a determination of the notional weekly hours, the target class size, the case load for a tutor, and the number of weeks the tutor is assigned to teach in order to develop the class contact equivalent for flexistudy programs. The next section highlights methods of determining the student-staff ratio in open learning programs and ways of ascertaining if students are "active." Finally, the paper emphasizes the importance of developing a calculus for measuring teaching hours expended in open learning systems through negotiating notional weekly hours, target class sizes, and class contact equivalents. (HB)

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Accounting for Academic Staff Resources for the Tutorial Support of Open Learning

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Derek W. Birch
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1981

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Introduction

For further education demographic decline does not necessarily imply declining enrolments. Student numbers may be sustained or even increased if participation rates by various age groups rise. One way to increase participation rates is to make further and higher education more accessible by introducing *open learning*.

Douglas Spencer (1980) suggests that we can assess the "openness" of a learning system by examining the degrees of freedom offered to the student in terms of what? when? and where? He argues that the universal characteristics of open learning systems are that they :

* provide the students with especially prepared materials for private study;

* provide a mark and comment service for the students' written work; and

* provide some tutorial and counselling support.

There are a number of examples of open learning currently to be found in further education. Some of these have been reviewed by Davies (1977), Coffey (1978) and Spencer (1980). The most commonly encountered type is *FlexiStudy* which was launched at Barnet College of Further Education in 1977 and which has since been extended to about eighty other colleges. The FlexiStudy scheme is fully described in Barnet College (1980).

There are a number of issues concerning open learning on which we require further information :

* Potential demand - how many people unable or unwilling to attend traditional courses would take up the opportunities offered by open learning systems?

* Development costs - how significant are the costs of developing learning materials? What are the economics of scale in such development and how can they be exploited?

* Learning outcomes - how do open learning systems compare with traditional modes with regard to dropout and success rates?

* Resource allocation - how can existing resourcing formulae and control procedures be adapted to cope with open learning?

This paper is concerned primarily with this fourth issue - the question of resource management. The focus is upon the deployment of academic staff - the most expensive resource. In many pilot schemes, particularly where there has been an attempt to conduct a 'full-cost' operation, FlexiStudy tutors have been paid at part-time rates or on some other ad-hoc basis. As the scale of operation increases, difficulties may arise and if open learning is to become a significant contribution, then its staffing must be arranged within current resource patterns.

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Open Learning and Teacher Class Contact

There is no one definitive procedure for deciding upon the number of teachers required by a college. LEA practice varies but in most cases the academic staff establishment is a function of past and/or planned patterns of classroom contact. Usually the procedure is as follows :

* firstly, identify the total class contact hours to be taught;
* secondly, classify these contact hours by "category" (i.e. level of work);
* thirdly, refer to the Burnham Report (1980) which recommend the ranges for the proportion of senior posts by reference to these categories;
* fourthly, take into account local conditions of service agreements (CLEA (1973)) which determine maximum class contact hours for any teacher within a particular "grade" (i.e. rank); and
* hence, determine the size and grade mix of the academic staff establishment.

The common feature of the documents concerned with staffing requirements and of the variety of practices is their starting point - class contact. However, open learning does not depend upon regularly scheduled face-to-face meetings of students and teachers. Indeed, any arrangement which requires a student to follow a predetermined pattern of attendance limits his freedom to choose place and pace and so closes rather than opens the learning system. Thus open learning does not fit naturally into the normal resourcing procedures but if it is to develop and extend some mechanism for bringing it into line with these procedures is required. What are the possibilities?

The tasks of a teacher include :

* defining learning outcomes;
* organising the learning material;
* presenting this material;
* providing feedback on achievement; and
* assessing and examining.

Not all these tasks are carried out in the classroom and this is recognised by the conditions of service agreements which generally postulate a 30 hours per week availability and then identify maximum class contact hours per week for each grade of staff. The difference between the 30 hours availability and the maximum class contact hours are presumed to be for marking, preparation and course administration. Hence, teacher class contact hours are a commonly employed proxy for assessing teaching workload.

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Whether the teacher is involved with open learning or is concerned solely with conventional programmes the teaching tasks identified above remain. The emphasis within this mix of activities may change, however. For example, the open learning tutor using say) a set of study notes produced by the National Extension College is likely to find that he is spending less time on preparing and organising the learning material and more time counselling and providing a mark and comment service on written assignments. Whatever the weighting within the mix of tasks, an important variable influencing the total workload of the teacher is the number of students for whom he is responsible. With this in mind, is it possible to establish equivalent measures of activity and workload across open learning and conventional modes?

The first step is to establish a credible comparison between the open learning under consideration and the most likely alternative traditional method of study. For example, if a FlexiStudy student following a single subject O-Level programme were to change to a conventional mode his most likely option would be a single subject O-Level evening-only course.

The next step is to consider how the further education system quantifies this conventional course for resource purposes. Suppose the evening only O-Level was scheduled to meet for 2½ hours per week for an academic year of 36 weeks and the enrolment was 20 students. Then two measures are calculated :

* *teacher class contact hours* - which is a proxy for teacher input; and
* *student taught hours* - which is a proxy for student learning activity (student learning activity may itself be considered a proxy for the major output of an educational system).

In our example the teacher class contact hours are given by 2½ hours per week for 36 weeks (i.e. 90 hours) and the student taught hours equal 2½ hours per week for 36 weeks for 20 students (i.e. 1800 hours). These two counts are required both for the establishment procedures referred to above and for the student staff ratio (SSR) of which more below.

To achieve an analogue for open learning we need to define for each open learning programme :

* The *NOTIONAL WEEKLY HOURS* : an agreed estimate of the learning activity of a student enrolled on the programme expressed in hours per week;
* The *TARGET CLASS SIZE* : an agreed estimate of the number of students who would form an acceptable class size in an equivalent conventional programme;
* The *CASE LOAD* : the total number of students assigned to a tutor for supervision ; and
* The *NUMBER OF WEEKS* the case load is assigned to a tutor for supervision.

For some purposes it will be convenient to agree the number of students enrolled on an open learning programme whose supervision is judged to generate a teacher workload equivalent to a conventional class contact of ONE hour in a week. This statistic we shall call the *CLASS CONTACT EQUIVALENT*.

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It is derived thus : (and see Note 1)

$$\text{Class Contact Equivalent} = \frac{\text{Target Class Size}}{\text{Notional Weekly Hours}}$$

Given this data, the proxies for the student learning activity and a teacher's workload involved in an open learning programme are as follows :

- student taught hours =

  (Case Load) x (Notional Weekly Hours) x (Number of Weeks); and

- teacher class contact hours =

$$\frac{\text{(Case Load)}}{\text{(Class Contact Equivalent)}} \times \text{(Number of Weeks)}$$

The Case Load and the Number of Weeks are matters of fact, the Notional Weekly Hours and the Target Class Size (and, hence the Class Contact Equivalent) are matters for negotiation. An agreement on Notional Weekly Hours would reflect a comparison of the learning activity of the open learning programme with the learning activity of the most likely alternative conventional mode of study. An agreement on the Target Class Size would reflect the class sizes being operated in the equivalent conventional programme. However, it would also take account of the relationship between the Target Class Size and the Student Staff Ratio (SSR) described below.

In any event the data base from which it would be possible to agree Notional Weekly Hours and Target Class Sizes is generally available. For example, for the O and A-Level evening-only courses at Barnet College in 1977/78:

- the average student taught hours was 69.8 (i.e. about 2 hours per week over a 35 week year) and

- the average class size was 20.1.

This information suggests that at Barnet College in that year for FlexiStudy students studying for a single subject O or A-Level the following should apply :

- Notional Weekly Hours : 2 hours per week ; and

- Target Class Size : 20 students

whence

- Class Contact Equivalent = 20/2 = 10 students.

Therefore, for a tutor with a case load of 30 FlexiStudy students assigned to him for supervision over a 35 week year, the 'counts' would have been :

- student taught hours =

  (30) x (2) x (35) = 2100 hours ; and

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teacher class contact hours =

$$\frac{(30)}{(10)} \times (35) = 105 \text{ hours}$$

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An agreement along the lines suggested in the last paragraph would tend to establish an equivalence of unit costs across an open learning scheme and its nearest equivalent conventional mode of study (Birch and Cuthbert 1981). Of course cost may not be considered the important criteria. However, if open learning schemes prove to be significantly more costly than traditional courses then this would surely inhibit the development of open learning.

Open Learning and the Student Staff Ratio (SSR)

Since 1971 "advanced" further education has been encouraged to satisfy SSR "norms" (Pooling Committee 1972). Many LEAs make use of SSR information even for their "non-advanced" further education and the DES is moving towards the collection and publication of SSR data for all colleges for advanced and non-advanced work.

The SSR is normally applied to aggregation such as the college or the 'faculty group' (i.e. discipline area) or the department. However, it may also be applied to an individual teacher or to a section of work such as an open learning programme.

The Pooling Committee (1972) defines the SSR as :

$$\frac{\text{FTE Students}}{\text{FTE Teachers}}$$

where:

* The full-time equivalent of part-time students is determined by dividing the total annual student taught hours of the part-time students by the average annual student taught hours of full-time students in the same faculty group (ASH); and

* The full-time equivalent of part-time teachers is determined by dividing the total annual class contact hours of part-time teachers by the average annual class contact hours of full-time teachers (ALH).

thus :

* $\text{FTE Students} = \frac{\text{Total Student Taught Hours}}{\text{ASH}}$

* $\text{FTE Teachers} = \frac{\text{Total Teacher Class Contact Hours}}{\text{ALH}}$

Applying these rules to an open learning programme we obtain :

* $\text{FTE Students} = \frac{\text{(Case Load)} \times \text{(Notional Weekly Hours)} \times \text{(Number of Weeks)}}{\text{ASH}}$

* $\text{FTE Teachers} = \frac{\text{(Case Load)} \times \text{(Number of Weeks)}}{\text{Class Contact Equivalent)} \times \text{(ALH)}}$

Whence :

$$\text{SSR} = \frac{\text{(ALH)}}{\text{(ASH)}} \times \text{(Notional Weekly Hours)} \times \text{(Class Contact Equivalent)}$$

$$= \frac{\text{(ALH)}}{\text{(ASH)}} \times \text{(Target Class Size)}$$

Pending decisions which may eventually lead to a national conversion factor of part-time students to full-time equivalents we may assume a figure of 27 hours for 36 weeks for ASH in *non-advanced* further education. Currently the nationally applied figure for ALH is 18 hours for 36 weeks. Therefore, the SSR for a non-advanced open learning programme would approximate to

$$\frac{2}{3} \times \text{(Target Class Size)}$$

The following Table identifies the SSRs for a range of Target Class Sizes and also illustrates the Class Contact Equivalent arrangements necessary to achieve these SSRs for a range of Notional Weekly Hours. For example, if the objective was to obtain an SSR of 10:1 then the Target Class Size should be set at 15, and further if the Notional Weekly Hours are agreed to be 2½, then the tutor should receive one hour of class contact credit for every 6 students in his Case Load for each week that this Case Load is assigned to him.

Target Class Size	Class Contact Equivalent (Notional Weekly Hours)			SSR
	2½	2	1 2/3	3 1/3
5	5	4	3 1/3	6 2/3
10	7½	6	5	10
15	10	8	6 2/3	13 1/3
20	12½	10	8 1/3	16 2/3
25				

"Active" Students

We have accounted for the learning activity and tutor workloads involved in open learning on the assumption that it is always possible to make a credible comparison across to an equivalent conventional course. Conventional courses, however, have definite start and end times whereas open learning aims to give the student more freedom with regard to entry and exit points and the choice of pace in between. The effect of this bears upon the case load count. If a student works slowly the tutor to whom he is assigned benefits from the consequent lightening of his workload. A related problem is the point at which an open learning student is deemed to have "dropped out". There is a paucity of information on withdrawal rates in open learning schemes in further education but in one case the confirmed wastage rate was around 50%, which appeared to be about the same as for similar conventional courses in the situation studied (Lewis 1980).

A course with cost effectiveness and an equitable distribution of resources

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would argue against colleges entering into totally open-ended arrangements with students. Since (in theory) open learning provides freedom of access and students may enter at any time, 'dropouts' may be replaced by new enrolments and Case Loads "topped up" on a continuous basis. In these circumstances the Case Load is a count of *active* students where an active student is defined as one who has submitted an assignment in the recent past or otherwise demonstrated his continuing participation in the programme. There is a consequent need to introduce a rigorous check on the status of students at least once a term.

Although SSR calculations are based on *enrolled* students and *planned* teacher class contact hours, the Burnham arrangements for deciding on the "group" of the college and the "grade" of the department require (so far as part-time students are concerned) a count of *registered* attendance. The concept of an "active" Case Load matches the concept of "actual" attendance and, coupled with "Notional Weekly Hours" provides a basis for accounting for Burnham Unit Totals.

Summary

Student activity and teacher workloads are traditionally assessed in further education by an analysis of the pattern of class contact. This approach is written into Burnham and reinforced by the conditions of service agreement and (more recently) by the SSR calculation. These rules are unlikely to be changed in the foreseeable future. If open learning is to become significant in further education, some calculus for bringing it into the ambit of the normal measurement processes is required. This paper has developed a way of achieving this objective. It depends upon :

* identifying an equivalent alternative conventional method of study ;

* with this conventional alternative as a reference point, negotiating (i) "Notional Weekly Hours" and (ii) "Target Class Sizes"; and

* managing the deployment of open learning tutors on the basis of the "Class Contact Equivalent" which is derived by dividing the Target Class Size by the Notional Weekly Hours. Given these agreements and (a) the "Case Load" and (b) "Number of Weeks" it is possibly to satisfy the need to count teacher class contact hours and student taught hours and so compute establishments and SSRs.

The nature of open learning emphasises the importance of a secure and up-to-date student record. To avoid an inequitable distribution of resources and an open-ended commitment we would recommend that the Case Load should be a count of "active" students.

This paper has been concerned with the question of providing tutorial support for an open learning scheme. The question of how to provide for the development of learning materials has not been considered. This would be the subject of another paper and more information than we have to hand.

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Note 1

Let us suppose that in student activity terms one open learning student is equivalent to one student enrolled on a conventional course which is scheduled to meet for x hours per week.

Let us further suppose that the Target Class Size for such a conventional course is 'y' students.

Then the lecturer teaching this conventional course handles the equivalent of y open learning students in x class contact hours or y/x open learning students in ONE class contact hour.

If x = Notional Weekly Hours

and y = Target Class Size

The "Class Contact Equivalent" = y/x

$$= \frac{\text{Target Class Size}}{\text{Notional Weekly Hours}}$$

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APPENDIX C

Student Staff Ratios (SSRs) : Accounting for the tutorial support of open learning, for the supervision of teaching practice and the industrial placement of sandwich students.

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